

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 05-064465

(43)Date of publication of application : 12.03.1993

(51)Int.Cl.

H02N 2/00

(21)Application number : 03-016685

(71)Applicant : UEHA SADAYUKI
ALPS ELECTRIC CO LTD

(22)Date of filing : 07.02.1991

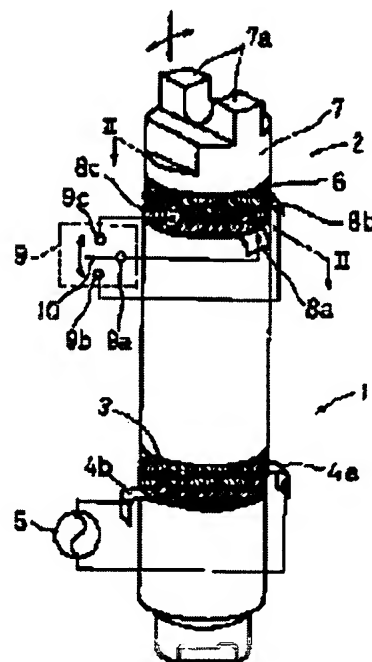
(72)Inventor : UEHA SADAYUKI
KUROSAWA MINORU

(54) ULTRASONIC TRANSDUCER

(57)Abstract:

PURPOSE: To obtain an ultrasonic transducer which simply excites a longitudinal vibration as a drive source and which can easily switch the output of a mover, and the like.

CONSTITUTION: The ultrasonic transducer comprises means 1 for producing a longitudinal vibration and means 2 for producing a bending vibration in the direction crossing with the longitudinal vibrating direction.



LEGAL STATUS

[Date of request for examination]

04.07.1996

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

| | |
|--|------------|
| ㄣ [Patent number] | 3029677 |
| ㄣ [Date of registration] | 04.02.2000 |
| [Number of appeal against examiner's decision of rejection] | |
| [Date of requesting appeal against examiner's decision of rejection] | |
| [Date of extinction of right] | |

* NOTICES *

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The perspective view showing one example of the ultrasonic transducer of this invention

[Drawing 2] The sectional view which met the II-II line of drawing 1

[Drawing 3] The perspective view explaining the flexurally oscillating condition of the oscillating direction control means part of the example of drawing 1

[Drawing 4] The side elevation explaining the flexurally oscillating condition of the oscillating direction control means part of the example of drawing 1

[Drawing 5] The property Fig. showing the admittance property of the lengthwise direction piezoelectric device at the time of short-circuiting one of the two of the electrodes divided into two of the piezoelectric devices of the oscillating direction control means of the example of drawing 1

[Drawing 6] The property Fig. showing the admittance property of the lengthwise direction piezoelectric device at the time of making both of the electrodes divided into two of the piezoelectric devices of the oscillating direction control means of the example of drawing 1 open wide

[Drawing 7] The property Fig. showing the admittance property between the electrodes divided into two of the piezoelectric devices of the oscillating direction control means of the example of drawing 1

[Drawing 8] The perspective view showing the motor it was made to make rotate Rota according to the example of drawing 1

[Drawing 9] (a) It is the diagram in which reaching and showing the lengthwise direction oscillating-component cloth of said oscillating direction control means when (b) excites a lengthwise direction excitation means with the resonance frequency of the piezoelectric device of the oscillating direction control means of the example of drawing 1, and the direction oscillating-component cloth of a deflection.

[Drawing 10] The sectional view showing the motor it was made to make rotate Rota using four ultrasonic transducers of the example of drawing 1

[Drawing 11] The perspective view showing other examples of the ultrasonic transducer of this invention

[Drawing 12] XII-XII of drawing 11 Sectional view which met the line

[Description of Notations]

- 1 Lengthwise Direction Excitation Means
- 2 The Oscillating Direction Control Means
- 3 Lengthwise Direction Piezoelectric Device
- 6 Piezoelectric Device
- 8a, 8b, 8c, 8d, 8e Electrode
- 9 Switching Means
- 11 Rota

[Translation done.]

したモータを示す斜視図

【図9】(a)および(b)は図1の実施例の振動方向制御手段の圧電素子の共振周波数で縦方向励振手段を励振させた場合の、前記振動方向制御手段の縦方向振動分布とたわみ方向振動分布とを示す横図

【図10】図1の実施例の超音波トランスデューサを4個用いてロータを回転させるようにしたモータを示す断面図

【図11】本発明の超音波トランスデューサの他の実施例を示す斜視図

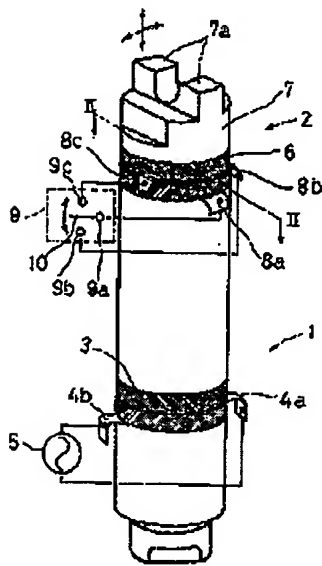
*【図12】図11のXII-XI線に沿った断面図

【符号の説明】

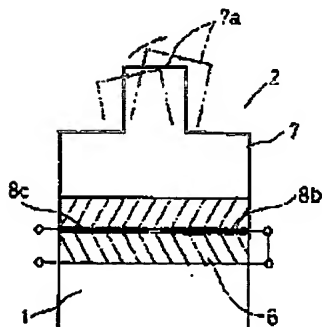
- 1 縦方向励振手段
- 2 振動方向制御手段
- 3 縦方向圧電素子
- 6 圧電素子
- 8a, 8b, 8c, 8d, 8e 電極
- 9 スイッチング手段
- 11 ロータ

*10

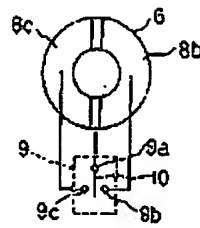
【図1】



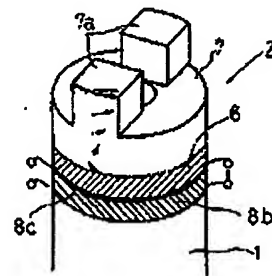
【図4】



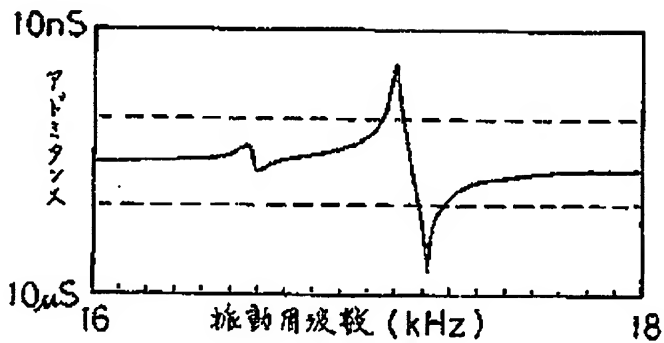
【図2】



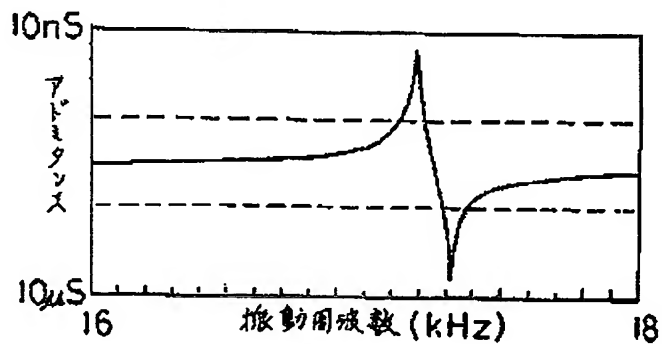
【図3】



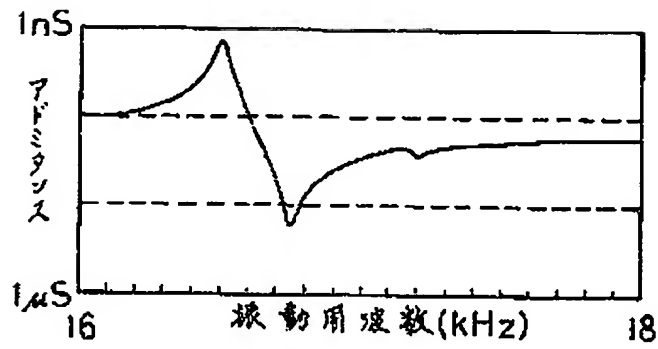
【図5】



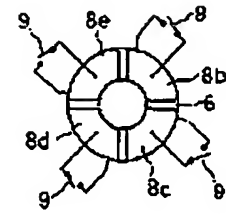
【図6】



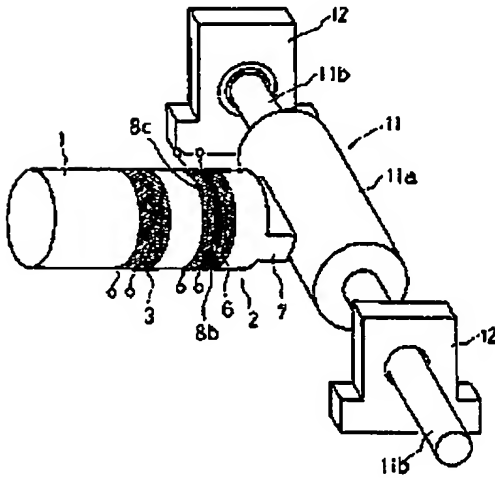
【図7】



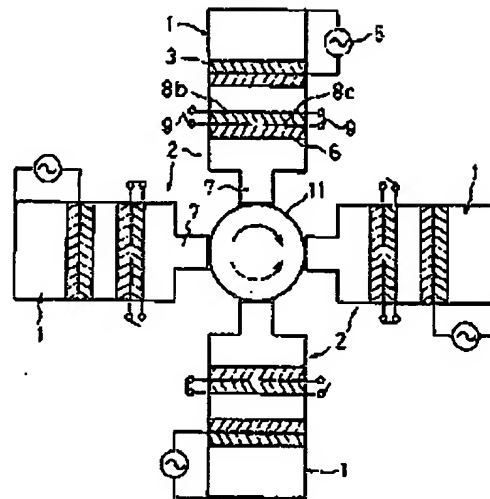
【図12】



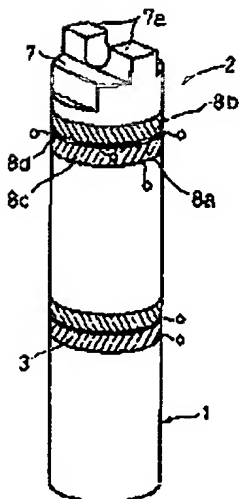
【図8】



【図10】



【図11】



【図9】

